

## ABSTRACT

A gas-agitated multiphase reactor system for the synthesis of hydrocarbons gives high catalyst productivity and reactor capacity. The system includes operating a multi-phase reactor in the well-mixed gas flow regime, with a Peclet number less than 0.175 and a single pass conversion ranging from 35% to 75%, wherein the inlet superficial gas velocity decreases with the decreasing of the reactor aspect ratio, and is preferably at least 20 cm/sec.

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